Johnson 1995

STREAM: Dave Creek

DRAINAGE: East Fork Jarbidge River

GAWS COMPUTER NO.: 170501,05,155,035,025,005

SURVEY DATE: July 12, 13, 14, and August 12 and 19, 1993

REPORT DATE: June 15, 1995

WRITTEN BY: Gary Lee Johnson

SURVEY METHODOLOGY: The United States Forest Service Region 4, Level III Fisheries Habitat Survey Method (March, 1989) was utilized at four Sample Sites (SS's) on Dave Creek and at one SS on an unnamed tributary located within the Humboldt National Forest (HNF). Each SS was preplotted on the United States Geological Survey, 7½ minute topographic maps of the area.

Upon locating a SS, a ¼-inch mesh block net was placed in the stream to serve as a barrier to downstream fish movement. The 100 feet of stream above the net at each SS was sampled for fish using a one pass effort with a Dirigo backpack electroshocker. Captured trout were measured (fork length), weighed, and returned to the stream following electrofishing. Fish population sampling was repeated at SS-1 through SS-3 in August because of the poor electrofishing results experienced under higher flows in July.

Aquatic macroinvertebrate type and relative abundance were assessed visually, using random substrate inspection at each SS. The first of five habitat transects began at the end of each fish sample area. Additional transects were placed at 50 foot intervals. Stream discharge was calculated by using timed float velocity measurements and water width and depth measurements over a uniform length of stream. Both air and water temperatures were recorded at each SS with the use of a hand held thermometer. A HACH KIT was used to measure pH, alkalinity, hardness, and dissolved oxygen at a location above SS-4 where flow began on July 14 and at the upper road crossing the tributary stream on July 13.

LAND STATUS AND ACCESS: The upper 3.2 miles of the Dave Creek drainage is public land administered by the Jarbidge District of the HNF. Below the Forest Boundary lies 3.2 miles of creek on private land and 2.6 miles on Bureau of Land Management administered land. The Forest portion of the Dave Creek drainage is accessible from either an 8 mile 4X4 access road from the town of Jarbidge or an 11 mile road from Murphy Hot Spring, Idaho.

WATERSHED DESCRIPTION: Dave Creek is a 9.8 mile long northerly flowing first order stream tributary to the East Fork of the Jarbidge River. The stream drainage dissects the Big Island on the west and Palomino Bench and Wilkins Island on the east. The stream channel emanates from the forested Sawmill Ridge and runs its length within a moderately steep, V-shaped valley with ridge to valley bottom elevations ranging from 200 to 400 feet. The

drainage encompasses about 3.5 mi^2 of volcanic geologic basin on the HNF (Million Scale Geologic Map of Nevada - 1977). Drainage elevations range from 9364 feet on Sawmill Ridge to 7000 feet where Dave Creek leaves the HNF.

Upland vegetation on the Forest consisted of fir, aspen, mountain mahogany, mountain shrubs, and various grass and forbs. Valley bottom width ranged from 105 feet to 266 feet and averaged 155 feet wide. Near the mouth of the tributary SS the valley bottom was 361 feet. Valley side slopes were moderately steep (mean slope = 40%) and stable.

WATER STATUS: During the July survey period stream flow in Dave Creek ranged from 2.54 cfs at the uppermost SS-4 to 12.5 cfs at the lowermost SS-1. The calculated flow at the tributary SS-1 was 0.52 cfs however, the majority of stream was intermittent. Streamflows were at a "medium" to "high" stage in July whereas, flows during the August fish population resurvey were "low" to "medium". Pool area increased about 15% with the decrease in streamflow between surveys. In July, pools and riffles averaged 8.0% and 92.0% of the habitat transect width, respectively. Ocular estimates of pool and riffle habitat through electrofished areas averaged 20.5% and 79.5%, respectively. The mean water width and depth across habitat transects was 11.5 ft. and 0.33 ft., respectively. Mean maximum depth across transects was 0.70 ft.

The tributary SS-1 averaged 5.2 feet wide and 0.09 feet deep. Pool:riffle ratio was about 5:95 across transects and an estimated 22:78 through the fish population survey area.

Stream temperatures ranged from 44.0°F at SS-4 to an 1100 hour reading of 48°F at SS-2. The tributary SS-1 had a 55°F at 1245 hours. The stream ran clear and fast at all times and locations. Water chemical analyses indicated a well oxygenated stream near the start of water in Dave Creek and a much lower level near the headwaters of the tributary (see below).

PARAMETER	MAINSTEM	TRIBUTARY
D.O. (ppm)	9	6
Alkalinity (ppm)	51	34
Hardness (ppm)	34	34
pH	6.5	6.0

The low alkalinity and acidic pH readings both indicate rather sterile conditions for good fish growth.

STREAM HABITAT CONDITION INDEX (HCI): The average stream HCI was 53.3 % of optimum or "poor" in the mainstem and 60.8 % of optimum or barely "fair" at SS-1 in the tributary. Most limiting to the overall HCI ratings were pool structure (0 % of optimum) and pool measure (19.2 % of optimum). The lack of quality type pools was also evident within the fish population sampled areas in July and August. Bank cover at SS-4 was rated only 47.5 % of optimum or "poor". Percent of optimum scores for bank cover, bank soil stability and vegetative bank stability, all rated "fair" at SS-1 on the mainstem.

STREAM CHANNEL TYPE AND STABILITY: Dave Creek was steep with a mean measured gradient of 7.4% on the Forest. The tributary SS-1 had a gradient of 4.5 %. A Rosgen's A-3 type stream channel best describes Dave Creek. The streambottom was composed of boulder (9%), rubble (23%), gravel (65%), sand/silt (3%), and other (<1%).

Stream channel stability (SCS) scores all rated as "good" stability with an average score of 69.4. There was generally a moderate to heavy amount of instream woody debris present. Stream-bottom embeddedness was "light" in the mainstem, indicating only a minor amount (15%) of sedimentation. The tributary SS-1 had a "moderate" embeddedness rating of 28%.

RIPARIAN DESCRIPTION: An aspen - willow riparian overstory with a grass - forb - sedge understory was the vegetative community type present at all SS's except, at SS-4 where an occasional fir tree and tall forbs and sedge predominated. Fir trees were common at S-2 and SS-3. Among the forbs that were present, there were nettles, thistle, and iris. Riparian condition ratings all rated "good" during the mid-July survey period however, by August heavy livestock grazing was noted along with streambank trampling. The valley bottom width ranged from 105 feet at SS-4 to 361 feet at tributary SS-1. Riparian vegetation encompassed from 75% to 100% of the valley bottom width except, at SS-4 where only 15% of the width was covered with riparian vegetation. Station 4 is likely an area that may dry up periodically in late summer hence, the less developed riparian zone. Streamside vegetation provided a fair stream canopy averaging 37% of the stream area. Station 4 had the lowest (19.5%) stream canopy cover.

HABITAT VULNERBILITY: The Index of Habitat Vulnerbility (HVI) to management activities was "high" at SS-2 and SS-3 and "moderate" at other SS's. Streambank sensitivity ratings as determined from the combined SCS scores for upperbank vegetative protection and lowerbank rock content averaged a score of 9.0 (6-14). Station 4 only had "poor" upperbank vegetative protection. A bank sensitivity score of >13 indicates that one season of moderate livestock grazing can result in damaged streambanks. Only a light amount of ungulate streambank damage was noted during the July stream habitat surveys of Dave Creek and it's tributary SS-1. As mentioned previously, livestock use and streambank trampling was rated as heavy during the mid-August fish population resurveys.

FISH POPULATION: Stream volume and flow was to great during the mid-July survey period hence, no fish were captured within the fish sample areas however, three trout were each seen at SS-1 and SS-3. No trout were seen at the tributary SS or at SS-4 on Dave Creek. During the mid-August resurvey of fish populations, rainbow/redband trout were captured at SS-1 and SS-2 at an minimum estimated 211.2 trout/mile (there were two fingerling and one subcatchable trout seen missed while electrofishing SS-2). Catchable-sized (>6 in. fork length) rainbow/redband trout comprised about 28.6% of captures. Rainbow/redband trout were estimated to occupy the lower 1.2 miles of Dave Creek on the Forest.

Bull trout were collected at SS-2 (n=2) and SS-3 (n=3) at a

minimum density of 88 bull trout per mile throughout the estimated 1.6 miles of trout occupied stream on the Forest. There appeared to be three age classes of bull trout present in the sample. No young-of-year bull trout were seen/captured. Two fingerling and one larger sub- catchable trout were seen but missed being captured at SS-2 during the resurvey effort. The misses may have been either species of trout.

Electrofishing efficiency was deemed "poor" to "fair" during the mid-July survey. With decreased stream flow by mid-August, shocking and netting efficiency improved enough to warrant efficiency ratings of "excellent" at two sites and a rating of "fair" at SS-2 .

No obvious fish barrier was seen however, the significant decrease in flow at SS-4 and low flow in the tributary suggest these areas are without sufficient water most of the year. A significant spring source entered Dave Creek above SS-3.

PREVIOUS FISH SURVEYS: On August 27, 1934, while surveying the waters of the Humboldt National Forest for the U.S. Bureau of Fisheries, S. D. Durrant collected two dolly varden in Dave Creek, four miles above its juncture with the East Fork of Jarbidge River (Miller and Morton 1952[1]). The aforementioned location would fall about two miles below the U.S. Forest Service Boundary.

The Nevada Fish and Game conducted a survey of Dave Creek on August 26 and 27, 1957. Two shocking stations were established, the uppermost site was located at the road crossing about two miles below the Forest Boundary while the lower site was about 1.5 miles up from the river at a trail down to the creek. Only rainbow/ redband trout were collected at both sites.

ANGLER USE: Dave Creek receives light fishing pressure. Angler 10% Questionnaire data for the period 1980 through 1989 shows that an average of 23 days were spent fishing Dave Creek by licensed anglers. Reported angler catch rates in 1973, 1975 and 1976 indicated good success for both species of trout.

AQUATIC MACROINVERTEBRATES: Mayflies were occasional to abundant at SS's. Mayfly family representatives noted in August included Baetidae, Heptagenidae and Siplonuridae. The Perlid stonefly was rare to common at all sites except, SS-4 where it was absent. Caddisfly larvae (stone cases, vegetation cases and free-living) were common to abundant everywhere except, at SS-4 where they were rare. Planaria were commonly seen at three SS's. Dipteran larvae were rare to common at SS-1 and SS-2, respectively. Moss/algae covered an average of 10% of the fish population sample areas.

BEAVER STATUS: No sign of beaver activity was noted. Adequate amounts of willow and aspen would make Dave Creek suitable for beaver occupancy. Ideal conditions for beaver occupancy would

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[1]Miller, R. R. and Wm. M. Morton 1952. First record of the dolly varden, *Salvelinus malma,* in Nevada. Copei No.3, page 207-208.

include an adequate food base and stream gradients that were much less than the gradients found on the Forest portion of stream.

CONCLUSIONS

STREAM'S IMPORTANCE: Dave Creek supports fishable native populations of rainbow/redband trout and the much less common, bull trout.

ISSUES AND CONCERNS:

1) During the fish population resurvey of Dave Creek in mid-August it was noted that cattle had heavily grazed and trampled the riparian zone. Conditions could of only gotten worse as the authorized grazing season extends through October.

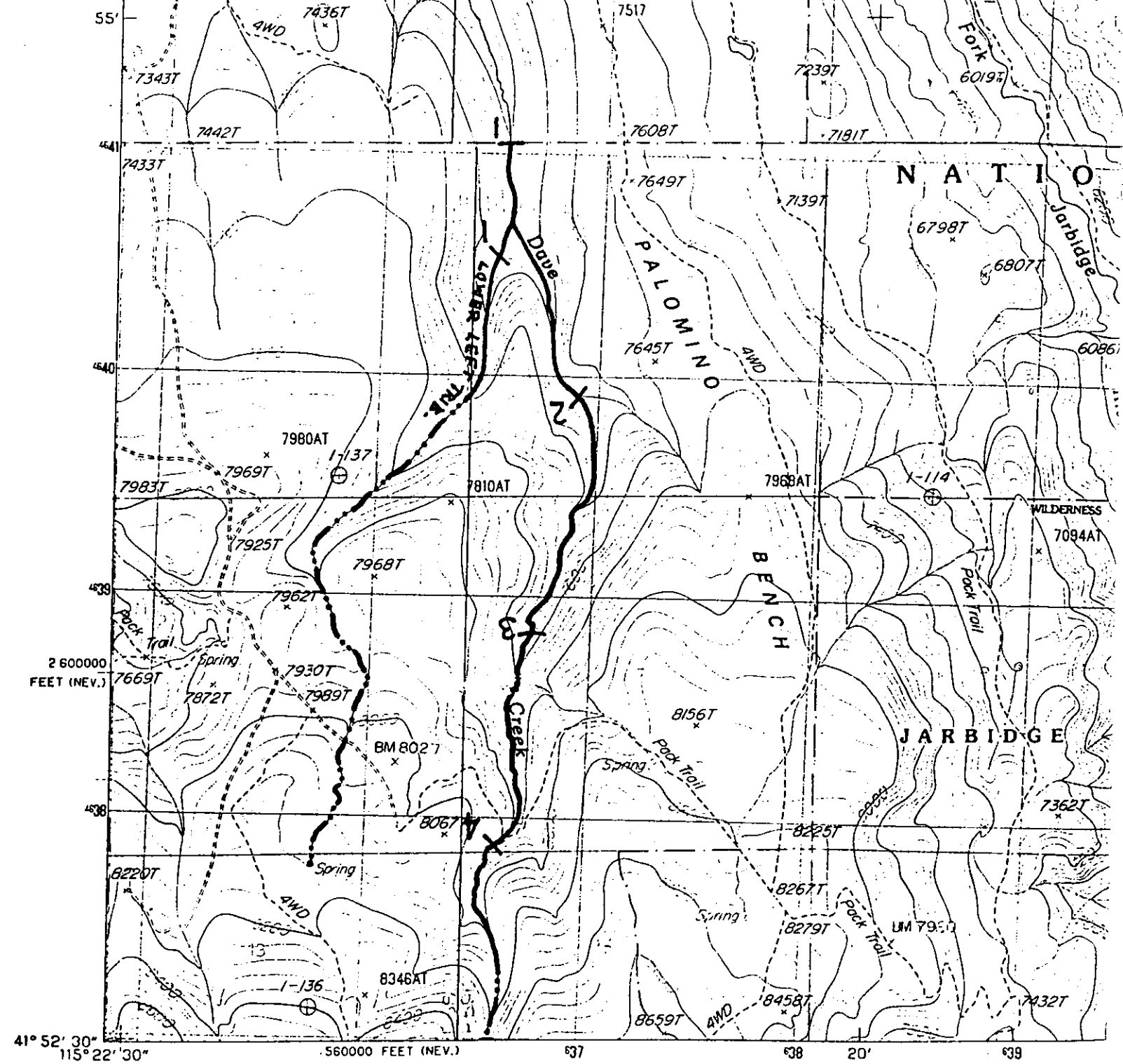
RECOMMENDATIONS:

1) The Forest Service should adjust the grazing permit to insure that the stream zone is maintained in a healthy state following the grazing use period.

2) Assess the feasibility of monitoring the bull trout population by conducting annual redd counts.

3) Complete intensive fish and habitat surveys on the unsurveyed portion of Dave Creek below the Forest Boundary.

4) Resurvey stream habitat and riparian conditions and fish populations on the Forest portion of Dave Creek in the fall season during base stream flows.



PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY
CONTROL BY ..... USGS, NOS/NOAA
COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1980
FIELD CHECKED ..... 1982 MAP EDITED 1986
PROJECTION ..... TRANSVERSE MERCATOR
GRID ID000-METER UNIVERSAL TRANSVERSE MERCATOR ..... ZONE 11
10,000-FOOT STATE GRID TICKS ..... NEVADA, EAST ZONE
IDAHO, WEST ZONE
UTM GRID DECLINATION ..... 1°00' EAST
1986 MAGNETIC NORTH DECLINATION ..... 16° EAST
VERTICAL DATUM ..... NATIONAL GEODETIC VERTICAL DATUM OF 1929
HORIZONTAL DATUM ..... 1927 NORTH AMERICAN DATUM

To place on the predicted North American Datum of 1983, move the projection lines as shown by dashed corner ticks (14 meters north and 75 meters east)

There may be private inholdings within the boundaries of any Federal and State Reservations shown on this map

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PROVISIONAL MAP
Produced from original manuscript drawings. Information shown as of date of photography.

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